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# UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No. **01-R**

First Inventor or Application Identifier **VALLABH**

Title **AUTOMATED METHOD AND SYSTEM**

Express Mail Label No. **EK 337242825 US**

## APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)  
(Submit an original and a duplicate for fee processing)
2. ☒ Specification [Total Pages **32**]  
(preferred arrangement set forth below)
  - Descriptive title of the Invention
  - Cross References to Related Applications
  - Statement Regarding Fed sponsored R & D
  - Reference to Microfiche Appendix
  - Background of the Invention
  - Brief Summary of the Invention
  - Brief Description of the Drawings (if filed)
  - Detailed Description
  - Claim(s)
  - Abstract of the Disclosure
3. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets **18**]
4. Oath or Declaration [Total Pages **2**]
  - a. ☒ Newly executed (original or copy)
  - b. ☐ Copy from a prior application (37 C.F.R. § 1.63(d))  
(for continuation/divisional with Box 16 completed)
  - i. ☐ DELETION OF INVENTOR(S)  
Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).

**\* NOTE FOR ITEMS 1 & 13: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).**

ADDRESS TO: Assistant Commissioner for Patents  
Box Patent Application  
Washington, DC 20231

5. ☐ Microfiche Computer Program (Appendix)
6. Nucleotide and/or Amino Acid Sequence Submission  
(if applicable, all necessary)
  - a. ☐ Computer Readable Copy
  - b. ☐ Paper Copy (identical to computer copy)
  - c. ☐ Statement verifying identity of above copies

## ACCOMPANYING APPLICATION PARTS

7. ☐ Assignment Papers (cover sheet & document(s))
8. ☐ 37 C.F.R. § 3.73(b) Statement of Power of Attorney  
(when there is an assignee)
9. ☐ English Translation Document (if applicable)
10. ☐ Information Disclosure Statement (IDS)/PTO-1449 [Copies of IDS Citations]
11. ☒ Preliminary Amendment
12. ☒ Return Receipt Postcard (MPEP 503)  
(Should be specifically itemized)
13. ☒ \* Small Entity Statement(s) [Statement filed in prior application, Status still proper and desired  
(PTO/SB/09-12)]
14. ☐ Certified Copy of Priority Document(s)  
(if foreign priority is claimed)
15. ☐ Other: \_\_\_\_\_

16. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No: \_\_\_\_\_

Prior application information: Examiner \_\_\_\_\_ Group / Art Unit: \_\_\_\_\_

**For CONTINUATION or DIVISIONAL APPS only:** The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

## 17. CORRESPONDENCE ADDRESS

☐ Customer Number or Bar Code Label

(Insert Customer No. or Attach bar code label here)

or ☒ Correspondence address below

Name **RAJESH VALLABH**

Address **50 UNDINE ROAD, UNIT 1**

City **BRIGHTON** State **MA** Zip Code **02135**

Country **US** Telephone **617-783-8280** Fax \_\_\_\_\_

Name (Print/Type) **RAJESH VALLABH** Registration No. (Attorney/Agent) \_\_\_\_\_

Signature **Rajesh Vallabh** Date **6-21-00**

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Express Mail No. **EK 337242825 US**

**Verification of Mailing by Express Mail**

I, Rajesh Vallabh, certify that I have mailed the information identified on the attached transmittal letter to the U.S. Patent Office, addressed to: Box Patent Application, Assistant Commissioner for Patents, Washington, DC 20231 by Express Mail, Mailing Label No. EK337242825US on June 21, 2000

Rajesh Vallabh

June 21, 2000



001290\*96T86560

**STATEMENT CLAIMING SMALL ENTITY STATUS  
(37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR**

Docket Number (Optional)

01-R

Applicant, Patentee, or Identifier: VALLABH

Application or Patent No.: \_\_\_\_\_

Filed or Issued: HEREWITH

Title: AUTOMATED METHOD AND SYSTEM FOR MERCHANDIZE  
TRANSACTIONS

As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- ☒ the specification filed herewith with title as listed above.  
☐ the application identified above.  
☐ the patent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ No such person, concern, or organization exists.  
☐ Each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern, or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

**RAJESH VALLABH**

NAME OF INVENTOR

NAME OF INVENTOR

NAME OF INVENTOR

*Rajesh Vallabh*

Signature of inventor

Signature of inventor

Signature of inventor

6-21-00

Date

Date

Date

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231

Express Mail No. EK337242825 US

Docket No. 01-R

PATENT

Applicant: Vallabh

Serial No.: Not yet assigned

Filing Date: Herewith

Title: AUTOMATED METHOD AND SYSTEM FOR MERCHANDIZE  
TRANSACTIONS

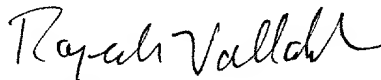
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Washington, DC 20231

**Preliminary Amendment**

Prior to examination and to calculation of filing fees, please amend the above-referenced patent application as follows:

Please cancel claims 62-86 without prejudice to their being refiled in a subsequent application claiming priority on the present application.

Respectfully submitted,



Rajesh Vallabh  
Applicant

June 21, 2000

Express Mail No. EK337242825US

007290 \* 96786560

**AUTOMATED METHOD AND SYSTEM FOR MERCHANDIZE TRANSACTIONS**

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**Related Application**

This application is based on Provisional U.S. Application Serial No. 60/140,762 filed on June 24, 1999.

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**Background of the Invention****Field of the Invention**

The present invention relates generally to merchandize transactions and, more particularly, to an automated method and system for making such transactions.

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**Description of Prior Art**

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Grocery shopping is typically a tedious and time-consuming chore. For example, a shopper must typically drive to the grocery store, find a parking spot and park his or her vehicle, walk to the store from the parking lot, find a shopping cart, walk through numerous isles to find and retrieve products needed, line up at a counter to pay a cashier, wait for the products to be sacked, take the purchased items to the vehicle, and return the shopping cart. This process can be particularly difficult and tiresome for shoppers with young children and for the elderly.

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Once in the store, the shopper may be disappointed to find that certain items are unavailable (e.g., they may be sold out or not even carried by the store). To keep items from being sold out, stores often keep greater inventories of products available than they expect to sell. This is a costly practice particularly with perishable goods (such as refrigerated products like milk) since unsold products often become spoiled and are wasted.

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There are substantial overhead costs associated with operating traditional grocery stores, which typically are large supermarkets. For instance, serving customers requires many employees (e.g., product stockers, cashiers, personnel to clean and maintain the store, and personnel to manage cash received from customers). A large parking lot must be provided for

customer vehicles. The store is typically large and on a single floor with wide isles to accommodate shopping carts. The store must also be well lit and aesthetically maintained.

The vast majority of merchandize sold at grocery stores is standardized, and product manufacturers typically exercise careful quality control on the products they make. As a result, one item on a store shelf (such as a box of cereal of a particular brand and size) will be identical for all practical purposes to an item of the same brand and size stacked behind it. Consequently, there is little need for shoppers to inspect the particular products they want before making the purchase.

Recently, a number of Internet-based grocery shopping systems have been introduced. For example, companies like peapod.com allow shoppers to place orders online for groceries to be delivered to their homes. While these new online businesses offer several advantages over traditional grocery stores, they in some respects are operated in similar fashion to the traditional stores and face many of the same problems. In addition, these businesses face the problem of the high cost and difficulty of delivering ordered products to customers.

A need exists for an improved method and system for selling merchandize, especially groceries.

### **Brief Summary of the Invention**

An improved method and system are provided for selling merchandize like groceries. In accordance with one embodiment of the invention, a method for selling merchandize is provided that includes receiving an order from a customer for products desired to be picked up by the customer at a given location, readying the products for customer pickup after receiving the order, detecting the arrival of the customer at the given location, moving the products to a loading station, and directing the customer to the loading station to pickup the ordered products. There are preferably multiple loading stations, which are preferably dynamically selected for use based on factors such as availability.

In accordance with another embodiment of the invention, prices for products are dynamically calculated based on variable factors such as, e.g., available supply and the time remaining before the 'sell by' product expiration date.

These and other features of the present invention will become readily apparent from the

following detailed description wherein embodiments of the invention are shown and described by way of illustration of the best mode of the invention. As will be realized, the invention is capable of other and different embodiments and its several details may be capable of modifications in various respects, all without departing from the invention. Accordingly, the drawings and description are to be regarded as illustrative in nature and not in a restrictive or limiting sense with the scope of the application being indicated in the claims.

### **Brief Description of the Drawings**

FIGURE 1 is a simplified block diagram of a representative network in which the merchandize-ordering portion of the inventive system is preferably implemented.

FIGURE 2 is a screen shot of a sample home page of a grocery shopping Web site in accordance with one embodiment of the invention.

FIGURE 3 is a screen shot of a sample shopper registration form in accordance with one embodiment of the invention.

FIGURE 4 is a screen shot of a sample 'product categories' page in accordance with one embodiment of the invention.

FIGURE 5 is a screen shot of a sample 'product' page in accordance with one embodiment of the invention.

FIGURE 6 is a screen shot of a sample 'selected product' page in accordance with one embodiment of the invention.

FIGURE 7 is a screen shot of a sample 'alternative product' page in accordance with one embodiment of the invention.

FIGURE 8 is a screen shot of a sample 'shopping list' generated by the system in accordance with one embodiment of the invention.

FIGURE 9 is a screen shot of a sample 'virtual shopping cart' generated by the system in accordance with one embodiment of the invention.

FIGURE 10 is a screen shot of a sample 'delivery information' page generated in accordance with one embodiment of the invention.

FIGURE 11 is a screen shot of a sample 'pickup information' page in accordance with one embodiment of the invention.

FIGURE 12 is a simplified top plan view of an illustrative merchandize pickup system in accordance with one embodiment of the invention.

FIGURE 13 is a block diagram illustrating operation of the central controller of the pickup system.

5        FIGURE 14 is a simplified side view of a pickup system with an alternative merchandize storage structure.

FIGURE 15 is a front view of a container for holding ordered products in accordance with one embodiment of the invention.

10       FIGURE 16 is a top plan view of a pickup system in accordance with an alternative embodiment of the invention.

FIGURE 17 is a flow chart illustrating merchandize pickup in accordance with one embodiment of the invention.

FIGURE 18 is a simplified top plan view of a pickup system in accordance with an alternative embodiment of the invention.

### **Detailed Description of Preferred Embodiments**

15       FIGURE 1 illustrates a representative network through which shoppers can place orders in accordance with the invention. The network includes a plurality of client machines 10 connected to a Web server 12 via communication channels 14. The channels 14 preferably comprise Internet connections. The client machines 10 can alternatively communicate with the server 12 through an Intranet or some other known network. In the case of the Internet, the Web server 12 is one of many servers that are accessible by clients.

20       By way of example, the client machine 10 can comprise a personal computer such as a Pentium-based desktop or notebook computer running a Windows operating system. As is well known, a representative computer includes a computer processing unit, memory, a keyboard, a mouse and a display unit. The screen of the display unit is used to present a graphical user interface (GUI) for the user. The GUI is supported by the operating system and allows the user to use a point and click method of input, e.g., by moving the mouse pointer on the display screen to an icon representing a data object at a particular location on the screen and pressing on the mouse buttons to perform a user command or selection. Also,

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one or more "windows" may be opened up on the screen independently or concurrently as desired.

The client machine 10 includes a browser, which is a known software tool used to access the servers of the network. Representative browsers include, among others, Netscape Navigator and Microsoft Internet Explorer. Client machines usually access servers through some private Internet access provider or an online service provider (such as, e.g., America Online).

Another possible type of client machine 10 is a portable device having a wireless link to the Internet. An advantage of a wireless device is that it can be used virtually anywhere including, e.g., in a vehicle as will be described below. One example of a wireless Internet device is a Palm Pilot brand hand held computer sold by 3Com Corporation. The Palm VII version of the Palm Pilot offers a wireless connection to the Internet using a technology known as 'Web clipping,' in which Web pages are reformatted to fit the Palm Pilot's small screen. While Web clipping is an open system model based on Internet standards, Internet content providers may need to adapt content to make it easily available to Palm VII users as is well known. Another example of a wireless Internet device is a Web-enabled wireless telephone.

Another type of client machine 10 can be a Web-linked screen phone. By way of example, such a phone can be of the type developed by Alcatel of France and marketed by US West Corporation. These phones include a color screen and pop-out keyboard. They can reach an Internet service provider by telephone lines, and allow users to navigate the Web by touching Web links on the screen, rather than using a mouse. Other types of Web-linked screen phones can also be used.

By way of example, the Web Server 12 comprises an IBM RS/6000 computer running the AIX (Advanced Interactive Executive Version 4.1 and above) Operating System and a Web server program (such as Netscape Enterprise Version 2.0) that supports interface extensions. (Various other suitable hardware/operating system/web server program combinations are possible.) The server 12 also typically includes a graphical user interface (GUI) for management and administration. A typical server also includes RAM, ROM, hard drive, modem, and an optional removable storage device, e.g., floppy or CD-ROM drive. The server 12 is connected to a database system 13, making various databases accessible by the server 12. The databases contain

various data as will be described below, including information on customers, inventory, available personnel, etc.

The Web server 12 operates a so-called 'Web site' and supports files in the form of documents and pages. A Uniform Resource Locator (URL) identifies network path to a Web site that is generated by the server. The World Wide Web is the Internet's multimedia information retrieval system. In particular, it is a collection of servers of the Internet that uses the Hypertext Transfer Protocol (HTTP). The World Wide Web provides users access to files (which can be in different formats such as, e.g., text, graphics, images, sound and video) using, a standard page description language, e.g., Hypertext Markup Language (HTML). HTML provides basic document formatting and allows developers to specify links to other servers and files. These links include "hyperlinks," which are text phrases or graphic objects that conceal the address of a site on the Web.

A user of a client machine having a browser (e.g., Netscape Navigator) can retrieve a Web page of a Web site by specifying a link via the URL. Upon such specification, the client machine makes a transmission control protocol/Internet protocol (TCP/IP) request to the server identified in the link and receives the Web page in return.

The present invention is directed to a method and system for selling merchandize and is preferably implemented in the Internet environment. The system includes a Web server (such as server 12) that hosts a Web site accessible via the Internet by shoppers using various individual client machines 10.

The Web site preferably includes a home page, a simple sample 100 of which is shown in FIGURE 2. The system preferably requires shoppers to pre-register prior to use. Registered members can access the system by entering a valid username/password combination. New users are preferably asked to preregister with the system.

FIGURE 3 illustrates a sample registration form Web page 120 for new users. The form includes various fields in which users can enter values using some input device on their client machines (such as, e.g., a keyboard). For example, the user is preferably asked to select a user identification and password for future secured access to the system. The user is also preferably asked to certain other information, including, e.g., contact information (such as, e.g., address information) and demographic information, which the system can use to selectively market items

to users having particular characteristics as will be described below. The system also preferably asks the user to provide payment information. Preferably, the system automatically electronically charges consumers for purchases using credit or debit card information. Alternatively, the system can send invoices to the user's billing address (typically a mailing address or an email address).

5        Once a user has registered with the system (or at some future time logged on with his or her correct username and password), he can select items for purchase. Initially, the user will preferably be shown a 'product categories' Web page, a simple sample 140 of which is shown in FIGURE 4. As shown, there are preferably a number of major categories, under which there are a number of subcategories. (For convenience of illustration, only a few of the possible categories and subcategories are shown.) The shopper can also preferably find a desired product by  
10        performing a keyword search through the system database containing product information.

      The subcategories are preferably hyperlinked to Web pages having further information on products in those subcategories. For example, if the subcategory 'milk' is selected, a sample Web page 160 of the type shown in FIGURE 5 can be generated and displayed. The FIGURE 5 Web  
15        page allows buyers to select a particular milk product available identified by type (e.g., skim or whole), brand, size and quantity. The system preferably stores in a database information on items previously purchased by the logged-in consumer. From this historical information, the system can determine the customer's preferences for particular products. For convenience, the system then preferably highlights in FIGURE 5 customer preferences, making it appear that a particular  
20        type, brand and size has been selected. (For example, in FIGURE 5, a customer preference for Brand X skim milk in a one-gallon size is indicated.) The user then simply presses the 'select' button 161 to confirm this choice. He can, of course, select an alternate item if desired.

      Once the user has selected the milk product desired and pressed the select button, the system preferably dynamically determines whether any incentive should be provided to encourage  
25        a customer to alter his or her choice of a product. (The term 'incentive' as used herein is intended to include both rewards (e.g., lower prices) in some cases to encourage certain choices and deterrents (e.g., higher prices) in some cases to discourage certain choices.) It may be desirable to have the customer change his or her choice of a particular product for various reasons. For example, the customer may have chosen an item that is in short supply. (The system may also  
30        "know," e.g., that a future shipment of the product from a manufacturer has been delayed for

some reason, and it may be desirable to 'stretch' current supplies until the shipment arrives.) Another reason for encouraging the customer to alter his or her choice may be that a similar product (e.g., another brand of the same type of product) may be overstocked or have a product 'purchase by' or 'sell by' (i.e., expiration) date that is about to expire. Yet another reason for attempting to alter the customer's choice may be to promote a competing product. (A manufacturer of a competing product may wish to promote its product in this manner. The manufacturer will preferably be charged some fee for the promotion.)

Once a determination is made on whether and what type of incentive is to be provided to the consumer, a sample Web page 180 of the type shown in FIGURE 6 may be generated. This page identifies the product selected by the buyer and the price. Preferably the price is dynamically calculated to include the incentive. For example, the price is higher than what it normally would be because of a shortage of the product. The amount of the increase would preferably be related to the degree of the shortage (e.g., an extreme shortage will result in a very high price).

(Optionally, the system does not reduce the price from what it normally would be if there were an oversupply of the product selected since in most cases the buyer will purchase the item at the 'normal' price because he or she has selected it in the first place.)

In addition (or as an alternative) to adjusting the price of the item selected by the consumer, the system can show an alternative choice of a similar item (e.g., Brand Y skim milk), which is more favorably priced. The price of the alternative choice can be adjusted to enhance the incentive to the customer if desired, i.e., the price of the alternative choice can be reduced to increase its appeal. The system might wish to encourage the customer to choose Brand Y milk because it may, e.g., be in oversupply.

Alternatively (or in addition), the buyer may be offered the alternative product at the same (or different) price as the selected item, but with "bonus shopping points." These would be similar in concept to bonus frequent flyer "miles" provided by airlines (e.g., AAdvantage brand miles provided by American Airlines), which are redeemable for future purchases of products and services.

Alternatively, some combination of adjusted prices and other incentives such as bonus points may be provided to encourage particular choices.

The shopper then decides what product (e.g., the selected one or the alternative offered

by the system) to purchase and presses the associated 'yes' button to add the item to his or her 'virtual shopping cart,' which is simply a list of items 220 selected for purchase (shown in FIGURE 9).

Although not shown, the system can also have different prices for the same brand product of the same size depending on its freshness as indicated by its 'purchase by' expiration date. The price can be calculated by, e.g., calculating the number of days remaining before expiration. A fresher product (i.e., the one with the greater number of days remaining before expiration) will be priced somewhat higher than less fresh products under this pricing scheme. The amount of the price difference is preferably related to the degree of the freshness (e.g., there will be a relatively large price difference if there is a large difference in the expiration dates).

Alternatively or in addition, other incentives (such as bonus points) can be provided to encourage sales of the less fresh products.

The system thereby allows the shopper an opportunity to weigh how much a particular product is worth to him or her in making a purchase. For instance, a customer who highly values Brand X milk will be willing to pay a higher price, while one who does not will instead select Brand Y milk. Also, e.g., a customer who uses a given product (such as, e.g., milk) quickly may well be willing to purchase a product that is closer to its expiration date (given proper incentive, of course) than other available products. The system thereby avoids product shortages by making particular products available to those who most value them.

The system can also dynamically calculate prices to provide discounts to customers purchasing large quantities of given products.

Instead of the Web pages 160, 180 of FIGURES 5 and 6 generated by the system after the user has selected 'milk' in FIGURE 4, the system can generate a sample Web page of the type shown in FIGURE 7. This page 200 preferably shows the prices of all 'milk' items available.

Again, the system preferably dynamically determines whether to provide the buyer with any incentive to purchase any particular item and, if so, what type of incentive. The incentive may be provided in the form of adjusted prices (preferably dynamically calculated) or other incentives such as bonus points (not shown) or some combination of both. The user can then comparison shop and check the item desired and add it to the virtual cart.

For convenience, the system optionally generates a preliminary shopping list (e.g., sample

page 210 shown in FIGURE 8) for a given customer based on, e.g., (1) information collected in the database of previous purchases by that customer and (2) the time passed since the shopper's last purchase of a given item. For instance, if the system 'knows' (from the historical data) that the customer purchases a gallon of skim milk about once a week, and a week has passed since his or her last purchase of skim milk, then the system will automatically add a gallon of skim milk to the preliminary shopping list. The user can, of course, override the system selection and choose another item (e.g., a gallon of whole milk) or none. He or she then presses the 'yes' button to add the item to the virtual shopping cart. For convenience, the preliminary shopping list 210 is preferably shown to the customer soon after he has logged onto the system.

The user can preferably at any point check what items are in his or her virtual shopping cart 220 (FIGURE 9). He can remove items from the cart or continue to add other items, e.g., by browsing through categories of products or doing a key word search for all items in the store.

The system preferably displays pictures of products along with nutrition labeling and other information as requested by the shopper.

The system preferably allows shoppers to perform online searches for products meeting particular nutrition or dietary requirements, e.g., to identify all types of ice cream available having a given maximum saturated fat content. The system preferably stores in a database detailed nutritional information on available products. A customer can ask the system to identify all products of a certain type (e.g., ice cream) that have certain nutrition characteristics (e.g., a daily maximum recommended saturated fat amount per serving of less than 60%). The system searches the database for products meeting the criteria and displays them to the shopper. This allows shoppers to quickly and conveniently find products meeting their needs without having to examine each of the various different products on a shelf at a traditional supermarket.

When the user has completed shopping, he or she can arrange for either pickup or delivery of the products by making an appropriate selection in FIGURE 9. If delivery is selected, the system preferably generates a sample Web page 240 of the type shown in FIGURE 10. For convenience, the system preferably pre-inserts a default delivery address of the customer from the system database containing customer information. The customer can, of course, change this default entry if delivery to some other address is desired.

The page 240 also preferably specifies available delivery times and corresponding

delivery prices (if there is a charge for delivery). The prices are preferably dynamically calculated based on the availability of system resources to prepare and deliver the order. The system preferably provides incentives to users to select times when system resources are underutilized.

For example, the system charges a higher delivery fee at the 2:30-3:00 PM time slot (and thereby discourages selection of it) than at the 9:30-10:00 PM slot because many more people may have requested afternoon delivery than evening delivery and sufficient staff may not be available in the afternoon to make timely deliveries. By encouraging customers to select delivery times when system resources are underutilized, the system is able to more efficiently use resources and thereby reduce costs. As an alternative to adjusting delivery prices, the system can provide other incentives such as bonus shopping points to encourage choice of delivery at certain times. Alternatively, some combination of adjusted prices and other incentives such as bonus points can be provided.

The system can also dynamically calculate delivery prices based on the customer location. For instance, a customer further away from where the products are stored may be charged a higher price than a nearer customer. Distances between the delivery origination location and particular customers can be easily determined using one of a variety of online services available providing map information such as, e.g., mapquest.com.

Also, for efficiency, the system preferably encourages a customer to select particular times when a delivery truck is expected to be nearby to the customer making some other prescheduled delivery. For instance, if a delivery has been scheduled at some scheduled time for one or more customers in a given neighborhood, then other customers placing subsequent delivery orders in the same neighborhood are provided with incentives to accept deliveries at that scheduled time.

Alternatively, in FIGURE 9 the buyer may select the 'pickup' button to arrange to pickup his or her purchases. In this case, the system preferably generates a sample 'Pickup Information' Web page 260 of the type shown in FIGURE 11. As shown, the buyer can select a particular pickup time slot. Again, to encourage optimal use of the pickup system, the system determines whether to provide incentives to encourage a pickup time when system resources are underutilized. Like the delivery system, the system preferably adjusts the total price charged to the consumer for the products, provides bonus points or other incentives, or some combination of both. For example, as shown the system attempts to discourage pickup at the 2:00-2:15 PM

and the 2:15-2:30 PM time slots (by charging a pickup fee) because many other customers may have already selected these slots and the system may not have sufficient resources to quickly process the pickups. Customers wanting to make immediate pickups can select “as soon as possible” and can optionally be charged a premium for this option.

5           The customer can also preferably select ‘self-service’ or ‘full-service’ pickup as will be described below.

          After the pickup or delivery information is entered by the user, a checkout page (not shown) is preferably generated by the system to confirm the order. If the user accepts what is shown, he or she is charged for the products ordered and the order is processed. The system  
10       preferably electronically charges the customer based on information such as, e.g., credit card information previously provided. This obviates the need for the costly and time-consuming processing of cash payments.

          Customers can optionally place their orders for groceries using devices having wireless links to the Internet. Use of such wireless devices allows customers to place grocery orders from  
15       virtually any location, including, e.g., vehicles. Thus, a customer can place an order from his or her vehicle before or while on the way to the pickup location. This saves time and increases convenience for customers.

          The shopper preferably picks up his or her groceries using representative pickup systems described below.

20       FIGURE 12 is a simplified illustration of an ordered item pickup system in accordance with one embodiment of the invention. The system generally comprises a storage area 300, a vehicle loading area 302, and a transfer mechanism 304 for transferring products stored in the storage area 300 to the loading area 302. It also includes a customer detection area 306 for sensing the arrival of a customer to pickup his or her goods.

25       The storage area 300 is preferably comprised of a main storage area 308 and an intermediate storage area 310. The main storage area 308 is a relatively long-term storage area for keeping goods. The intermediate area 310 is where goods that have been ordered by customers are temporarily stored until the customer picks them up. While the main and intermediate storage areas are shown in the drawings as being in separate rooms, it should be  
30       noted that both storage areas could be part of the same room. Also, while only two storage stages



are shown (i.e., main and intermediate areas), it should be realized that any number of stages may be used.

For grocery systems, the storage area 300 is preferably further divided into a refrigerated section 312 (for storing refrigerated products like milk), a freezer section 314 (for storing frozen products like ice cream) and a room temperature section 316 (for storing items at least initially kept at room temperature like canned goods). Grocery products can thereby be stored in optimal temperature conditions in both main and intermediate storage areas to avoid spoilage.

The vehicle loading area 302 preferably comprises multiple loading stations 318 at which customers can pick up ordered goods. While the FIGURE 12 shows three stations 312, it should be noted that any number could be provided as desired. Multiple loading stations are preferred to enable quick transfer of goods to customers. However, in accordance with another embodiment of the invention, a single loading station is provided.

While the FIGURE 12 drawing shows the entire storage area as being on a single floor, FIGURE 14 shows an alternate embodiment wherein the storage area 300' is on multiple floors.

This is unlike traditional supermarkets, which are typically on a single floor. One reason for having supermarkets on a single floor is that large numbers of shopping carts cannot be quickly or easily be moved from one floor to another. In the present system, shoppers normally do not enter the storage area, thus making use of multiple floors practical. Use of a multi-storied building results in a more efficient (and less costly) use of land space. Thus, e.g., in FIGURE 14, a refrigerated food section 312', a frozen food section 314', and a room temperature food section 316' can each be on a separate floor with each floor having a main and intermediate storage areas 308' and 310', respectively. Other configurations and arrangements of the various sections in a multi-storied building are also possible.

A pickup order placed by a customer is received at the Web server 12 as described above.

In accordance with one embodiment of the invention, the Web server 12 communicates the order to a site central controller 319 (shown in FIGURE 13), which processes the order and controls operation of various subsystems. The controller 319 comprises a computer with sufficient memory and processing capability to perform the functions described herein. Those skilled in the art will recognize that various system architectures can be used to perform the functions of the system. For example, while a single computer is described as acting as the central controller,

those skilled in the art will realize that the functionality can be distributed over multiple computers.

After an order is received, the goods ordered are readied for pickup. This readying process generally involves identifying and collecting the selected products stored in the main storage area 308 and moving them to the intermediate area 310. The process of identifying and collecting the selected products is ordinarily performed by personnel known as 'product pickers' or is automated as is well known in the mail order industry.

In accordance with one embodiment of the invention, the goods are preferably collected and placed in a reusable standard container or bin such as, e.g., the container 320 shown in FIGURE 15. The container 320, which preferably comprises a molded plastic body, includes an interior area for holding ordered goods and optionally includes an interior compartment 322 for holding breakable items such as, e.g., fresh eggs. The compartment 322 may include padded interior walls and/or some type of fastening mechanism (such as, e.g., a fastenable elastic strap) to keep breakable products from moving about in the container. Each container 320 preferably includes a lid 324. The container is preferably insulated to keep refrigerated and frozen products cool when the container is at a loading station.

Each container 320 also preferably includes a unique identification marking 326 that can be read by a machine reader 327 and transmitted to the controller 319, which uses the information in order processing. The controller associates the marking 326 on a container 320 with a particular customer order. The identification marking 326 comprises, e.g., a radio frequency identification (RFID) tag as will be described below. It may alternatively comprise various other well known machine-readable markings or indicia such as, e.g., a bar code marking readable by a bar code scanner.

The container 320 also optionally includes a microprocessor-controlled, battery-powered electronic display 328 such as an LCD or LED display, which preferably displays the customer username (or some customer identification marking), an order identification, and the merchandise to be placed in the container. An input device 330 (such as, e.g., an infrared optical communications receiver) is provided to receive the information to be displayed from the controller 319 via a transmitter 331 (such as, e.g., an infrared transmitter). Preferably the information to be displayed is input at the same time the marking 326 is read to associate an order

with the container 320. Having the customer name displayed helps ensure that the correct container is provided to the customer at time of pickup. Having merchandize information displayed can assist personnel in loading the correct products in the container 320.

Alternatively, the information can be printed on paper (or some other fixed medium) and  
5 affixed to the container (e.g., inserted into a transparent paper holder secured on the container).

After a customer order has been received, an available container 320 is associated with the order and loaded with the ordered goods. (Loading can be performed immediately upon receipt of the order or at some later time if the selected pickup time is not immediate.) For convenience, the goods are preferably first loaded in disposable plastic or paper bags that the  
10 customer can take home. Once the container 320 has been loaded, it is moved from the main storage area 308 to the intermediate area 310 to await customer pickup. Then upon arrival of the customer to pickup his or her goods, the container 320 is moved (preferably automatically) from the intermediate area 310 using the transfer mechanism 304 to the loading area 302 for pickup. (The goods are preferably not moved to the loading area 302 until arrival of the customer at the  
15 site in order to reduce spoilage of the products since the loading area 302 will typically be outdoors and not in a temperature controlled environment.)

Multiple containers may be associated with a given order depending on what is ordered. For example, the customer may have one or more containers with frozen products, one or more containers with refrigerated products, and one or more containers with room temperature stored  
20 products.

The customer detection area 306 is preferably located at an entrance to the site some predetermined distance away from the loading area 302. The detection area 306 is used to detect and identify approaching customers. Upon detection and identification of a customer, the system identifies and locates the container(s) associated with an order placed by the customer and  
25 initiates transfer of the container(s) from the intermediate area to the loading area.

The detection area 306 preferably comprises one or more customer detection and identification stations 340, preferably of the type used, e.g., in automated highway toll collection stations. Customers are provided with identification tags 342, e.g., RFID tags or transponders, to place in (or on) their vehicles 344. Transponders are usually mounted behind vehicle  
30 windshields. As is well known, a transponder typically contains a radio receiver, a radio

transmitter, a dedicated logic circuit, and a battery. Each transponder contains information uniquely identifying a particular customer to the system, e.g., a unique identification number. Each station 340 preferably includes an automatic vehicle identification (AVI) antenna 341 that sends out radio signals. A transponder 342 in a vehicle 343 approaching the station responds to the AVI signal by transmitting a signal that contains the transponder's identification number. The station also contains an AVI reader 344, which receives the identification information from the transponder 342. The reader 344 that is linked to one or more detection area computers 345 that collect raw data and sort oncoming data from the various stations. The computer 345 communicates the received information to the central controller 319.

For customer vehicles not equipped with an identification tag 342, a separate lane 380 is preferably provided having an input device 382 (such as a keypad) into which the customer can enter his or her identity. The customer can, e.g., enter his or her username and password. This information is also transmitted to the central control system.

Alternatively, the customer can be provided with an identity card, and the input device 382 can comprise a card reader for reading the identity card. Such a card could have, e.g., a magnetic strip encoded with information on the identity of the customer. A customer credit card can also be used for this purpose.

Alternative customer identification and detection systems can be used including, e.g., one using global positioning system (GPS) tracking.

This information can optionally be used to monitor vehicles entering and leaving the site for security purposes (e.g., to reduce theft by employees).

Once the central controller 319 has identified the customer by matching the information received from the detection area to customer data stored in the system customer database, the order placed by the customer is identified. The controller then matches the customer order to the container or containers in which the ordered merchandize has been previously placed (e.g., manually by product pickers or using an automated mechanism). The system then preferably dynamically assigns the customer a particular loading station 318 to which he or she can drive to pickup the ordered groceries (if there are multiple loading stations). The loading station 318 is selected preferably by determining which of the plurality of loading stations is not being used or is most underutilized (i.e., which one has the fewest number of vehicles currently assigned to

it for pickup). Also at that time, the system initiates transfer of the container(s) associated with the customer's order to the selected loading station 318 such that preferably by the time the customer arrives at the assigned loading station (or shortly thereafter) the ordered groceries are available to be loaded in the vehicle.

5 The system notifies the customer of the loading station 318 selected preferably by displaying the loading station number on a display 346 provided in each lane. The display can comprise, e.g., an LCD or an LED display. (Alternatively, a single large display (not shown) can be provided for all lanes.) The display 346 can, e.g., provide the following sample message: "Mr. Doe, please proceed to Loading Station No. 2 to pickup your groceries." Preferably only the  
10 customer's username, which may be different from the customer's actual name, is displayed to maintain anonymity. Displaying username information allows the customer to verify that the system has correctly identified him. If, as a result of some error, the system incorrectly identifies the customer (or is unable to identify the customer), a manned help station 350 can be provided to assist the customer (e.g., to perform the function of the automated customer detection and  
15 identification station).

For security, the loading stations preferably include gates that automatically open once the customer is identified.

The transfer system 304 is used for moving the container(s) associated with the customer from the storage area 300 to a particular selected loading station 318. A variety of transfer  
20 systems can be used for this purpose. For example, as shown in FIGURE 12, the transfer system 304 includes multiple transporters 352 (e.g., conduits, chutes, conveyors and elevators) extending from each section of the storage area 300 to each one of said loading stations 318. The transfer system 304 preferably also includes container locating mechanisms 354 (preferably automated), which identify and load containers onto selected transporters leading to particular loading stations  
25 318. The central controller 319 preferably controls the locating mechanisms 314.

The locating mechanisms 354 are preferably located in each section of the intermediate storage area 310. As shown in FIGURE 12, each locating mechanism 354 may comprise an endless rotating conveyor. The conveyor can include multiple slots 356, each configured to receive a container. The locating mechanism 354 preferably tracks the position of each slot 356  
30 as the conveyor moves to load or unload containers thereon. The conveyor preferably moves in

a step fashion past a loading ramp 357 (from the main storage area) and past unloading ramps 359 (leading to various loading stations). When a container has been filled with ordered products in the main storage area, it is identified (i.e., its identification marker is read) and loaded onto the conveyor into one of the slots 356. By tracking movement of the slots, the control system  
5 'knows' the location of the container as the conveyor rotates. When the central controller determines that it is time for the container to be delivered to a given loading station, the conveyor is moved to position the container at the entry (i.e., an unloading ramp 359) of a transporter 352 leading to that loading station 318. A mechanism (preferably automated) is provided at the unloading ramp 359 of each transporter 352 to move the container onto the transporter. The  
10 system thus automatically moves containers as needed from storage to the loading station when needed.

Alternatively, containers 320 could be manually moved from the storage area to selected transporters 362 leading to the loading stations 318. The containers could also be manually moved from the storage area directly to the loading stations. Alternatively, some combination  
15 of manual and automated transfer could be performed.

FIGURE 16 illustrates an alternative transfer mechanism 370 comprising an endless conveyor located outside of the storage area. Ramps are provided at the storage area to move loaded containers onto the conveyor. Loaded containers can be manually or automatically moved from the intermediate storage areas onto the conveyor (when the presence of the customer is detected at the detection station). Each loading station includes an off-ramp preferably equipped with a detector/unloader mechanism that automatically identifies (preferably from marker 326 on the container) and retrieves containers 320 from the conveyor intended for the particular loading station. This detector/unloader mechanism communicates with the control system and receives information on which containers it is supposed to retrieve. Alternatively, the container could be  
20 manually transferred from the conveyor to the assigned loading stations. For this purpose the display 328 on each container 320 (or the printed sheet affixed to the container) identifies the assigned loading station. (The assigned loading station number is preferably entered into the input device 330 of the container upon assignment of the loading station by the controller 319.)

Various other types of transfer mechanisms are possible in accordance with the inventive  
30 system for quickly and efficiently moving products from the storage area to a loading station.

As the shopper drives to the designated loading station 318, container(s) with the shopper's goods are being transferred from the storage area to the loading station. At the loading station, the shopper opens his or her car (e.g., the car trunk) and loads goods from the container 320 if the loading station is a self-serve station. If the station is a full-serve station, personnel will be available to load the groceries in the customer's vehicle. (This is particularly convenient since customers can remain seated in their vehicles.) As previously discussed, the customer preferably selects at the time of placing his or her order whether to use a self-serve or a full-serve pickup station.

Once the groceries have been loaded in the vehicle, the container 320 is preferably left at the loading station to be reused. A container return mechanism (not shown) can be provided to move unloaded containers from the loading station back to the main storage area for reuse. In order to reduce loss (by, e.g., theft) of containers, the system can optionally include a detection station at a site exit (similar to theft detection stations at retail stores) to detect any containers taken in shoppers' vehicles. An alarm can be sounded if any containers are detected at the exit to alert the customer to return the container.

FIGURE 17 is a flowchart summarizing the pickup process in accordance with the preferred embodiment. An order for merchandize is received from a customer at 400. After the order is received, the merchandize is readied for pickup at 405. As previously discussed, this generally involves retrieving the merchandize from storage and preferably loading it into one or more containers. The containers are preferably moved into an intermediate storage area. Arrival of the customer is detected at 410, and he or she is identified. The customer is then directed to a selected one of a plurality of loading stations at 415. Also, the container or containers associated with the customer are identified and located and moved to the selected loading station.

Various other types of pickup systems are also possible. For example, FIGURE 18 illustrates an alternative pickup system 500 in accordance with the invention. This pickup system includes a plurality of loading stations 502, each equipped with a detection apparatus 504 to detect the arrival of a customer. In this embodiment, the customer selects and drives to one of the loading stations. When he or she arrives at the loading station, his or her arrival is detected, the order is identified, and transfer of ordered products to that loading station is initiated. The detection apparatus can comprise any of the detection apparatus described above including, e.g.,

apparatus for reading data from a transponder in the customer vehicle.

The pickup systems in accordance with the invention can conveniently be used for picking up groceries (and other merchandize) and at the same time various other items such as, e.g., dry cleaning, developed photographs, and recorded movies (sales and rentals) and music.

5 The system saves the consumer time and effort. It also reduces transaction costs for the seller. (For example, there are lower overhead costs. Goods can be stored in a warehouse type environment. Fewer employees are needed since many functions are automated.) In addition, the dynamic incentive calculation scheme optimizes use of system resources and increases system efficiency. The system also enables targeted marketing schemes based on information saved in  
10 a database, e.g., demographic data and data collected from tracking shopper use of the system.

The pickup system can exist by itself or in combination with the delivery system. Also, in a delivery system, a delivery vehicle loading system can be devised that is similar to the customer pickup system. For example, the customer detection and identification station could be used to identify a particular delivery vehicle from a fleet of such vehicles and guide that  
15 vehicle to a delivery vehicle loading station where merchandise to be delivered by that vehicle to one or more customers can be loaded. As with the customer pickup system, the delivery vehicle loading system preferably selects loading stations based on their availability and, in particular, which one is most underutilized.

20 While the inventive shopping system has been described in the context of grocery shopping, it should be noted that it can be used for various other products including, e.g., books, recorded music, recorded movies (sales and rental) and music, and fast food.

Having described preferred embodiments of the invention, it will be apparent to one skilled in the art that changes and modifications can be made thereto without departing from the spirit and scope of the invention.



**Claims**

1. A method of selling groceries, comprising:

receiving an online order from a customer for grocery products the customer desires to pick up at a given location;

electronically processing payment information for said order;

retrieving said grocery products from a storage area containing a plurality of such products and maintaining said retrieved grocery products in generally the same temperature conditions as said products were kept in the storage area to inhibit spoilage of said products;

detecting arrival of said customer a predetermined distance from said given location;

dynamically selecting one of a plurality of loading areas at said given location and directing said customer to said selected loading area; and

moving said grocery products to said selected loading area for customer pickup responsive to detection of said customer.

2. The method of Claim 1 wherein receiving said order comprises receiving an order at a Web server from a remote client machine operated by said customer.

3. The method of Claim 1 wherein said client machine comprises a wireless communications device located in a vehicle in which said customer is seated.

4. The method of Claim 1 wherein detecting arrival of said customer comprises detecting an identification device located in a vehicle in which said customer is seated.

5. The method of Claim 4 wherein said identification device comprises a transponder.

6. The method of Claim 1 wherein directing said customer comprises displaying information identifying said selected loading area to said customer.

7. The method of Claim 1 wherein moving said grocery products to said selected loading area comprises moving a container containing said products to said loading area.

8. The method of Claim 7 wherein moving said container comprises using an automated transfer mechanism for moving said container.

9. The method of Claim 1 wherein said payment information includes a credit card number of said customer.

10. The method of Claim 1 further comprising separating refrigerated products from room temperature stored products after retrieving said products.

11. The method of Claim 1 further comprising loading said products into a vehicle in which said customer is seated.

12. A method of selling merchandize, comprising:

receiving an order from a customer for a product desired to be picked up by the customer at a given location;

readying said product for customer pickup at said given location after receipt of said order;

detecting presence of said customer a predetermined distance from said given location;

directing said customer to a loading station at said given location; and

moving said product to said loading station for customer pickup responsive to detecting the presence of the customer.

13. The method of Claim 12 wherein receiving said order comprises receiving an order at a Web server from a remote client machine operated by said customer.

14. The method of Claim 13 wherein said client machine communicates with said Web server

through an Internet connection.

15. The method of Claim 13 wherein said client machine is a personal computer.

5 16. The method of Claim 13 wherein said client machine is a Web-linked screen phone.

17. The method of Claim 13 wherein said client machine is a communications device having a wireless link to the Internet.

10 18. The method of Claim 12 wherein said merchandize comprises groceries, and said given location comprises a warehouse.

15 19. The method of Claim 12 wherein readying said product comprises retrieving said product from a plurality of products located in a general storage area and moving said product to an intermediate temporary storage area.

20. The method of Claim 19 wherein said intermediate storage area has substantially the same ambient temperature conditions as said general storage area to inhibit product spoilage.

20 21. The method of Claim 12 wherein readying said product comprises placing said product in a container having an identification tag, and associating said tag to said order.

22. The method of Claim 12 wherein detecting presence of said customer comprises detecting an identification device associated with said customer.

25 23. The method of Claim 22 wherein said identification device comprises a transponder located in a vehicle driven by said customer.

30 24. The method of Claim 23 wherein detecting said identification device comprises receiving a radio frequency signal emitted by the transponder.

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25. The method of Claim 22 wherein detecting said device comprises subjecting said vehicle to infrared radiation and detecting a reflection of said radiation emitted from said device.

26. The method of Claim 12 wherein detecting presence of said customer comprises receiving an input from said customer indicating his or her presence.

27. The method of Claim 26 wherein receiving an input comprises receiving an input on a keypad identifying said customer.

28. The method of Claim 26 wherein receiving an input comprises using a machine reader to read a card associated with the customer having information identifying said customer magnetically stored therein.

29. The method of Claim 12 wherein directing said customer comprises displaying information identifying said loading station to said customer.

30. The method of Claim 12 wherein readying said product comprises placing said product in a container, and wherein moving said product to said loading station comprises moving said container containing said product to said loading station.

31. The method of Claim 30 wherein said container comprises:  
a container body including an interior space for holding the merchandize;  
a microprocessor-controlled electronic display mounted on the container body for displaying information relating to ordered merchandize;  
an input device for inputting the information to be displayed on said display; and  
an identification tag having a unique identifier on said body.

32. The method of Claim 30 wherein moving said container comprises using an automated transfer mechanism for moving said container.

33. The method of Claim 32 wherein said automated transfer mechanism includes a conveyor mechanism.

5 34. The method of Claim 30 further comprising detecting whether said customer is attempting to leave said given location with said container, and if so, alerting said customer to return said container.

35. The method of Claim 12 wherein said steps are automated.

10 36. The method of Claim 12 further comprising registering said customer prior to receiving said order.

15 37. The method of Claim 36 wherein registering said customer comprises receiving from said customer username and password information.

38. The method of Claim 36 wherein registering said customer includes receiving contact information from said customer.

20 39. The method of Claim 36 wherein registering said customer includes receiving buyer profile information from said customer.

40. The method of Claim 12 further comprising receiving payment information from said customer.

25 41. The method of Claim 40 wherein said payment information includes a credit card number of said customer.

30 42. The method of Claim 12 further comprising dynamically selecting a loading station from one of a plurality of loading stations prior to directing the customer to the loading station.

43. The method of Claim 42 wherein said loading station is selected based on availability.

44. The method of Claim 42 wherein said loading station is selected based on which one of  
5 said loading stations is available for use or which one is most underutilized.

45. The method of Claim 12 further comprising loading the product into a vehicle driven by  
the customer at the loading station.

10 46. The method of Claim 12 further comprising receiving from the customer information on  
approximately what time the customer wishes to pick up the product.

47. The method of Claim 46 further comprising charging the customer a fee based on when  
the customer wishes to pick up the ordered product.

15 48. The method of Claim 12 further comprising dynamically calculating a price for said  
product and indicating said price to said customer.

49. A system for selling groceries to customers, comprising:

20 a computer for receiving an order for grocery products from a customer;

a storage area containing different groceries including the grocery products  
ordered by the customer;

a plurality of loading stations at which groceries can be loaded into customer  
vehicles;

25 detection apparatus for detecting the arrival of the customer to pickup the ordered  
products; and

a transfer mechanism responsive to detection of the customer by the detection  
apparatus for moving the products from the storage area to a loading station at which the  
customer can pickup the product.

50. The system of claim 49 wherein the computer comprises a Web server.

51. The system of claim 49 wherein said storage area comprises a main storage area and a temporary intermediate storage area, said intermediate storage area being used for storing products retrieved from the main storage area and readied for customer pickup.

52. The system of claim 49 wherein said storage area comprises an area for storing refrigerated goods, an area for storing frozen goods, and an area for storing goods at room temperature.

53. The system of claim 49 wherein said storage area is part of a multi-storied building and said different groceries are stored on various floors of said building.

54. The system of claim 49 further comprising means for dynamically assigning loading stations to arriving customers.

55. The system of claim 49 wherein said detection apparatus comprises a reader for reading data from an identification device associated with each customer.

56. The system of claim 55 wherein said identification device comprises a transponder.

57. The system of claim 55 wherein said identification device comprises an identification card and said apparatus comprises a card reader.

58. The system of claim 49 further comprising a plurality of detection stations, each including a detection apparatus.

59. The system of claim 49 wherein each loading station includes a detection apparatus.

60. The system of claim 49 wherein the transfer system comprises a container locating

mechanism for locating a container in which said product is stored and transporters leading from the storage area to the loading stations for transferring the container from the storage area to a loading station.

5 61. The system of claim 49 further comprising a plurality of containers for storing ordered products, wherein each container comprises:

a container body including an interior space for holding the merchandize;

a microprocessor-controlled electronic display mounted on the container body for displaying information relating to ordered merchandize;

10 an input device for inputting the information to be displayed on said display; and

an identification tag having a unique identifier on said body.

62. A method of using a computer to sell merchandize to a customer, comprising:

receiving an indication from a customer of an interest in purchasing a product;

15 dynamically calculating a price for said product based on at least one variable factor;

offering said product to said customer for purchase at said price; and

receiving a response from said customer accepting said offer.

20 63. The method of Claim 62 wherein said computer comprises a Web server.

64. The method of Claim 62 wherein offering said product comprises generating a Web page accessible by said customer, said Web page displaying said price.

25 65. The method of Claim 62 wherein said factor comprises availability of said product.

66. The method of Claim 62 wherein said factor comprises time remaining before a next shipment of said product arrives.

30 66. The method of Claim 62 wherein said factor comprises perishability of said product.



67. The method of Claim 62 wherein said product is perishable and said factor comprises time remaining prior to an expiration date indicated on said product.

5 68. The method of Claim 62 wherein said factor comprises available resources to handle sale of said product.

69. The method of Claim 68 wherein said available resources includes availability of personnel at a given time.

10

70. A Web-based method of selling products to customers, comprising:

(a) receiving an online order for a given product from a customer;

(b) determining whether the customer should be encouraged to purchase an alternate product;

15

(c) if so, informing the customer that such an alternate product can be purchased;

(d) receiving from the customer an order for either said given product or an alternate product;

(e) selling said product ordered in (d) to said customer.

20

71. The Web-based method of Claim 70 wherein (b) comprises determining whether the given product is in short supply.

72. The Web-based method of Claim 70 wherein (b) comprises determining whether an alternate product exists and whether the alternate product is in over supply.

25

73. The Web-based method of Claim 70 wherein (b) comprises determining whether an alternate product exists and whether a program exists to promote the alternate product.

30

74. The Web-based method of Claim 70 wherein (b) comprises determining whether an alternate product exists and has an expiration date sooner than that of the given product.

75. The Web-based method of Claim 70 wherein (c) comprises providing the customer with an incentive to purchase the alternate product.

5 76. The Web-based method of Claim 75 wherein said incentive comprises pricing the alternate product lower than the given product.

10 77. The Web-based method of Claim 75 wherein said incentive comprises providing the customer with frequent shopper points redeemable for products for selecting the alternate product.

78. The Web-based method of Claim 75 wherein the incentive comprises pricing the given product higher than the alternate product.

15 79. A Web-based method of identifying to a customer a product meeting certain nutritional characteristics desired by the customer, comprising:

(a) providing a database of nutritional characteristics for a plurality of products;  
(b) receiving from the customer an online request to identify products meeting certain

specified nutritional characteristics;

20 (c) searching the database for products meeting those characteristics;  
(d) identifying products found in (c) to the customer.

80. A plurality of containers for use in collecting ordered merchandize, each container comprising:

25 a container body including an interior space for holding the merchandize;  
a microprocessor-controlled display mounted on the container body for displaying information relating to the ordered merchandize;  
an input device for inputting the information to be displayed on said display; and  
an identification tag having a unique identifier on said container body.

81. The plurality of containers of Claim 80, wherein each container further comprises a compartment for holding breakable items.

82. The plurality of containers of Claim 81 wherein said compartment is padded.

83. The plurality of containers of Claim 81 wherein said compartment includes a fastener for inhibiting movement of breakable items therein relative to the container.

84. The plurality of containers of Claim 80 wherein said display identifies the ordered merchandise.

85. The plurality of containers of Claim 80 wherein said display identifies a customer associated with said ordered merchandize.

86. A method of generating a shopping list, comprising:  
determining from historical data whether a pattern exists for the purchase of a given item;  
determining based on the time elapsed since the last purchase by the customer whether a purchase of the given item would generally fall within said pattern;  
if so, generating a shopping list that includes said item.

A method and system are provided for selling merchandize. The method includes receiving an order from a customer for a product desired to be picked up by the customer at a given location, readying the product for customer pickup at the given location after receiving the order, detecting the arrival of the customer, and moving the product to a loading station at the given location for customer pickup.

15

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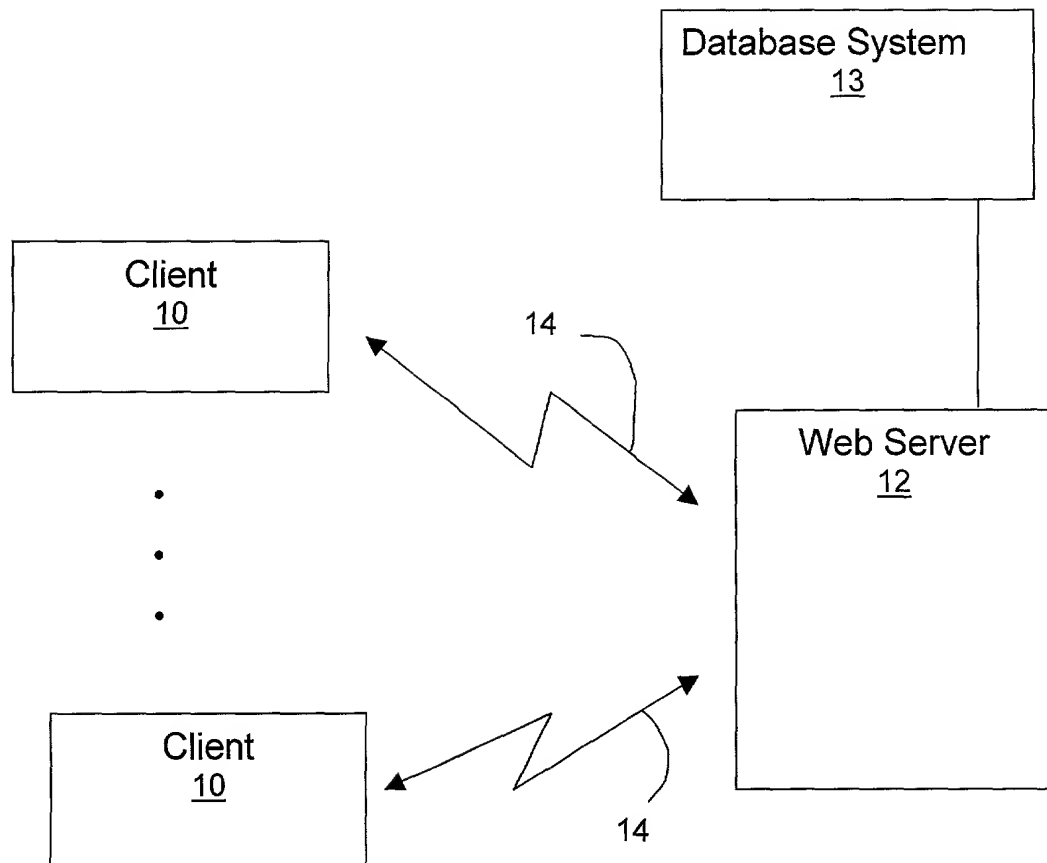


FIG. 1

## GROCERY SHOP HOME PAGE

Member Login:

Username:

Password:

[New Member Signup](#)

100



FIG. 2

## SHOPPER REGISTRATION FORM

Please provide the following information:

### Secured Access Information:

Username:

Password:

### Contact Information

Name:

Address:

Telephone No.:

Email Address:

### Demographic Information

Family Size:

Number of children:

### Payment Information

Credit Card Number:

Bank Account Debit Information:

Billing Address:

**SUBMIT**

120

FIG. 3

## PRODUCT CATEGORIES

### DAIRY

Milk  
Cheese  
Yogurt

### PET FOOD

Dog Food  
Bird Food

### FRUIT

Apples  
Pears

### PHARMACY

Cold Medication  
Pain Relievers

### FROZEN FOODS

Vegetables  
Ice Cream

### BAKERY

Bread  
Bagels

KEY WORD SEARCH  find

140

FIG. 4



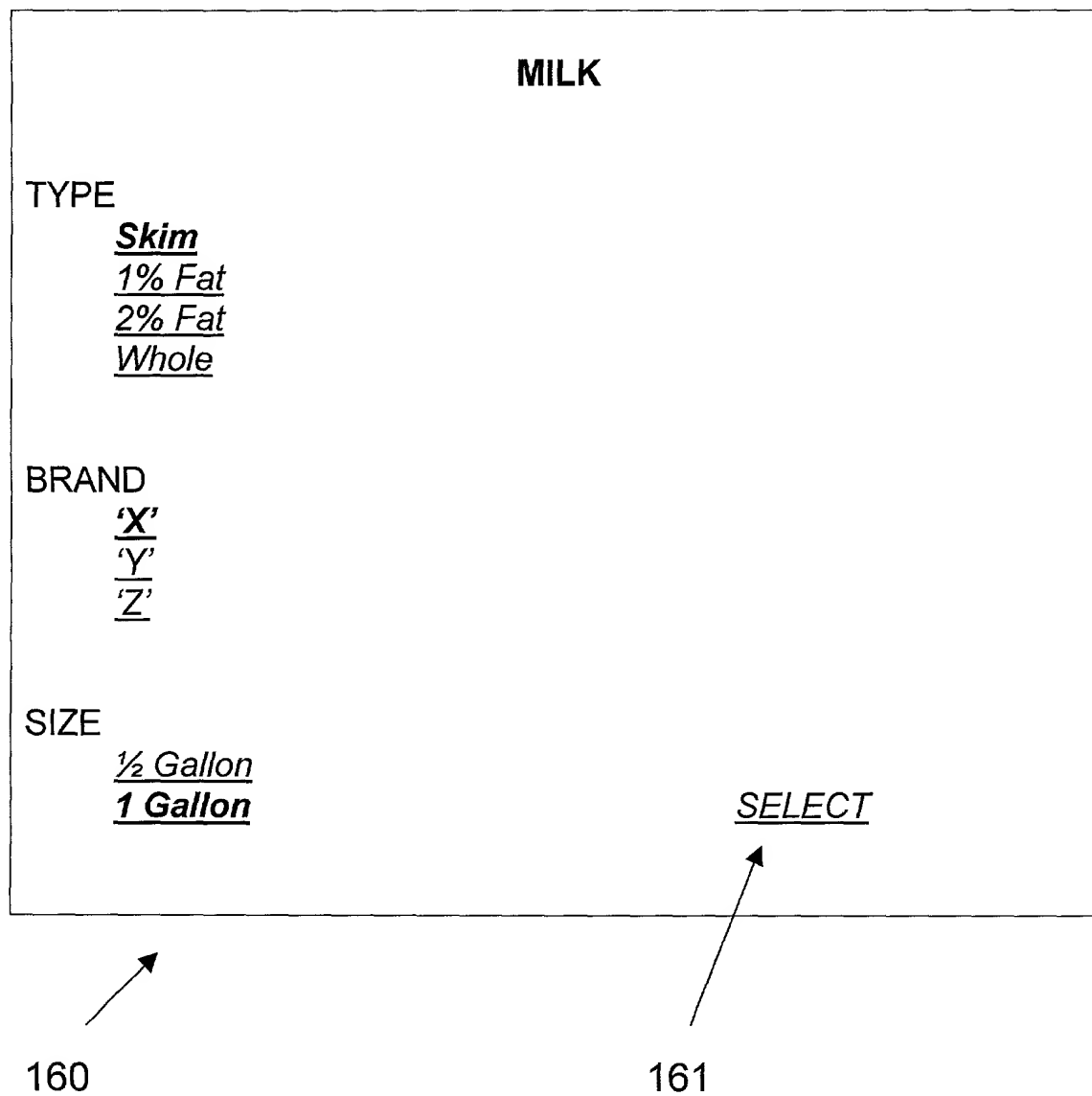


FIG. 5

You have selected    Brand 'X'    Skim Milk   ½ Gallon

Price =       \$2.00

Add this item to shopping cart?    Yes    No

---

You might wish to instead select the following item:

Brand 'Y'    Skim Milk   ½ Gallon

Price =       \$1.80

Add this item to shopping cart?    Yes    No

180

FIG. 6

# MILK

Brand 'X'	Skim Milk	½ Gallon	\$2.00	<input checked="" type="checkbox"/>
		1 Gallon	\$4.00	<input type="checkbox"/>
	Whole Milk	½ Gallon	\$2.00	<input type="checkbox"/>
		1 Gallon	\$4.00	<input type="checkbox"/>
Brand 'Y'	Skim Milk	½ Gallon	\$1.95	<input type="checkbox"/>
		1 Gallon	\$3.80	<input type="checkbox"/>
	Whole Milk	½ Gallon	\$1.85	<input type="checkbox"/>
		1 Gallon	\$3.60	<input type="checkbox"/>

Add checked item to shopping cart?    Yes    No

200

FIG. 7

SHOPPING LIST					
1	Brand 'X'	Skim Milk	½ Gallon	<input checked="" type="checkbox"/>	\$2.00
1	Brand 'Y'	Whole Wheat Bread	Loaf	<input checked="" type="checkbox"/>	\$1.00

Add these items to shopping cart?    Yes    No

210

FIG. 8

# ITEMS IN CART

BRAND	ITEM	SIZE	QUANTITY	PRICE
X	Skim Milk	½ Gallon	1	\$2.00
Z	Tuna Fish	6 oz. Can	4	\$5.00
.				.
.				.
.				.
Y	Plain Yogurt	8 oz.	1	\$1.00
			<b>TOTAL</b>	<b>\$20.00</b>

CONTINUE SHOPPING

DONE

Arrange PICKUP or DELIVERY

220

FIG. 9

### DELIVERY INFORMATION

Deliver to 123 Main Road, Anytown NY 12345

Select Delivery Time for today [\*\(click here for other days\)\*](#)

Time	Price	Bonus Points
<u>As soon as possible</u>	\$12.00	0
<u>2:00-2:30 PM</u>	\$6.00	10
<u>2:30-3:00 PM</u>	\$8.00	0
.		
.		
.		
<u>9:00-9:30 PM</u>	\$2.80	200
<u>9:30-10:00 PM</u>	\$2.80	200

240

FIG. 10

## PICKUP INFORMATION

Select Pickup Time for today

[\*\(click here for other days\)\*](#)

Time	Price Adjustment	Bonus Points
<u>As soon as possible</u>	+\$4.00	0
<u>2:00-2:15 PM</u>	+\$2.00	0
<u>2:15-2:30 PM</u>	+\$2.00	0
<u>2:30-2:45 PM</u>	none	0
.		
.		
.		
<u>9:30-9:45 PM</u>	-\$1.00	200
<u>9:45-10:00 PM</u>	-\$1.50	300

Select Pickup Service

Self Serve Pickup no additional charge

Full Service Pickup \$0.85 additional charge

SUBMIT

260

FIG. 11

FIG. 12

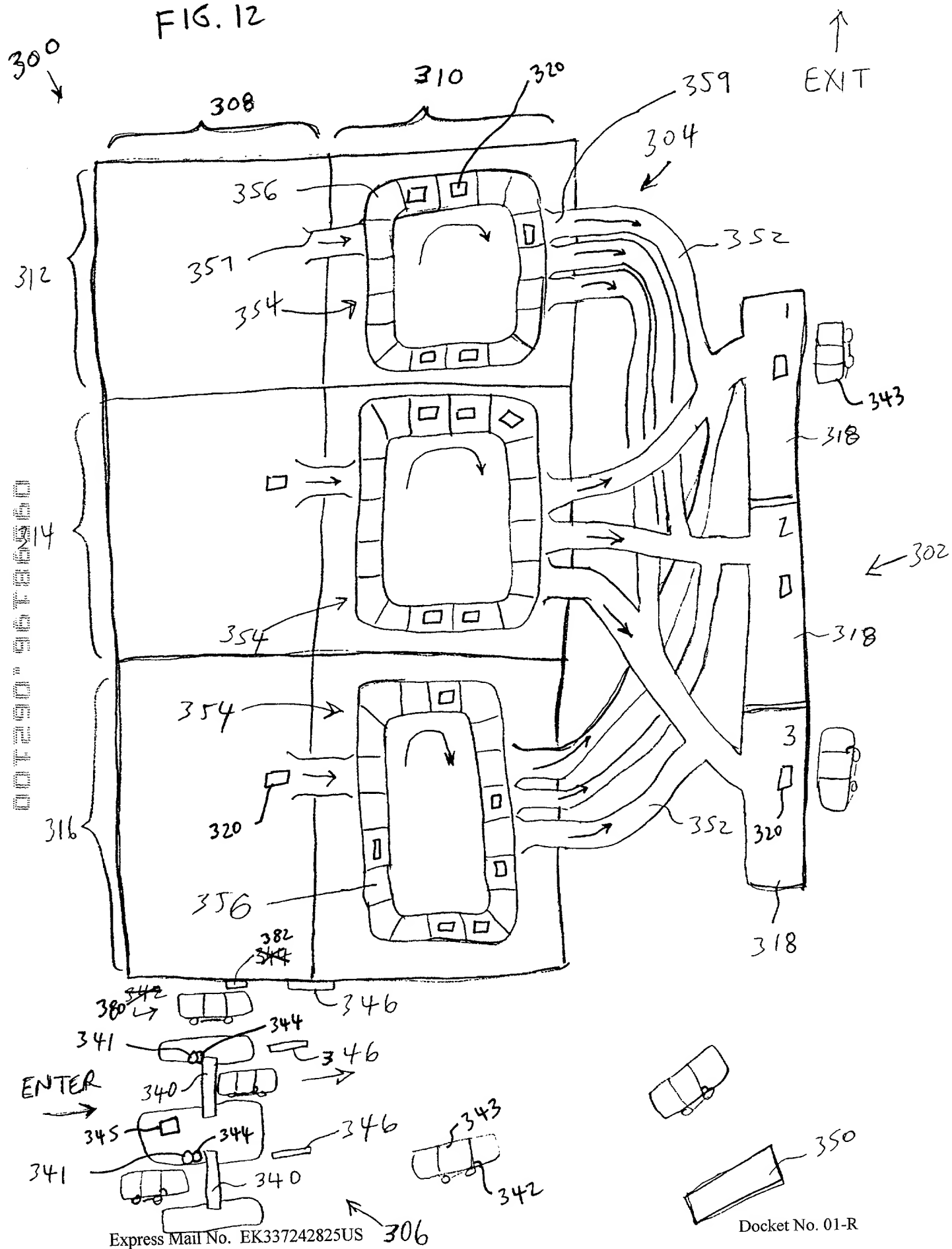




FIG. 13

007250" 96786560

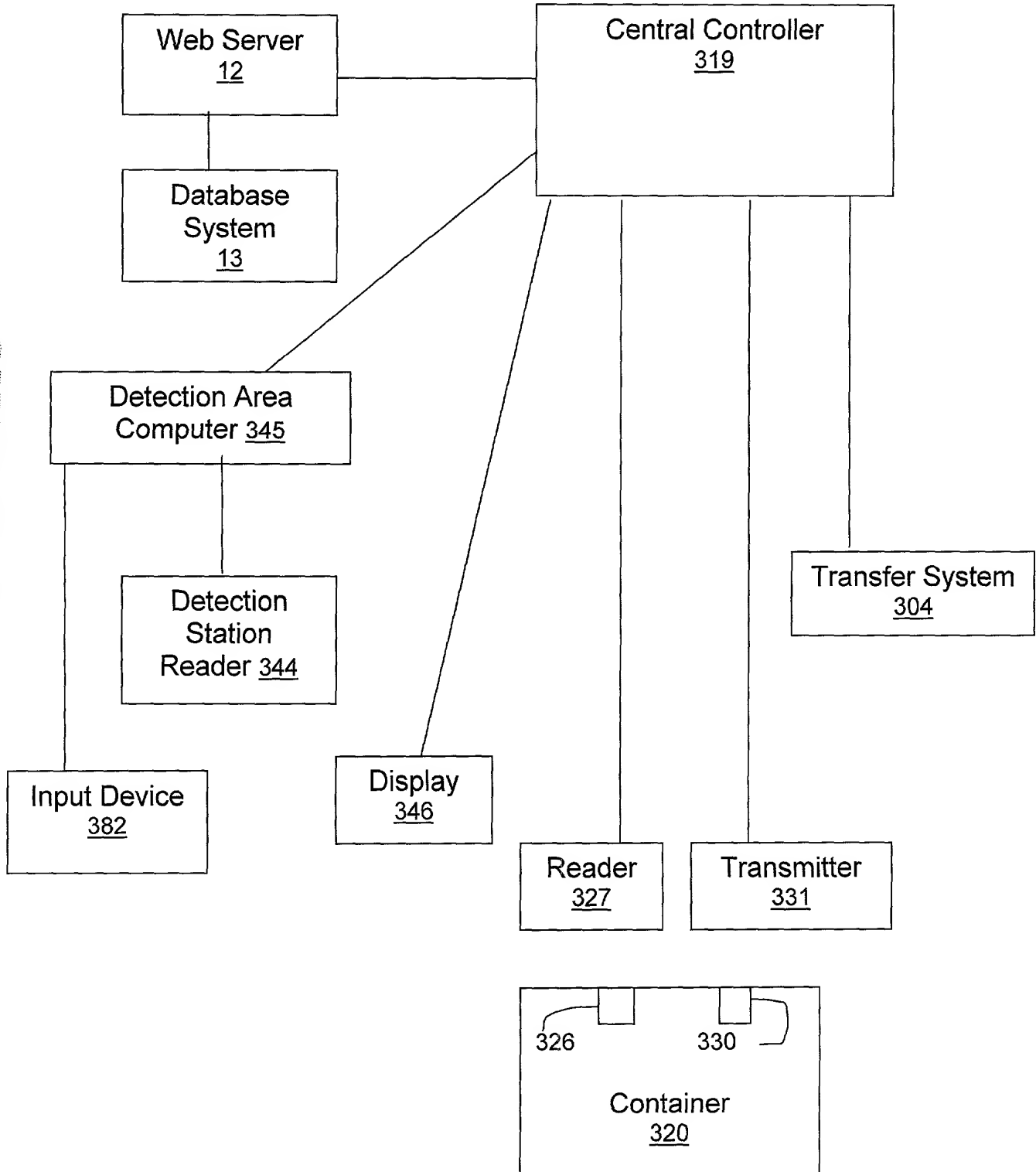
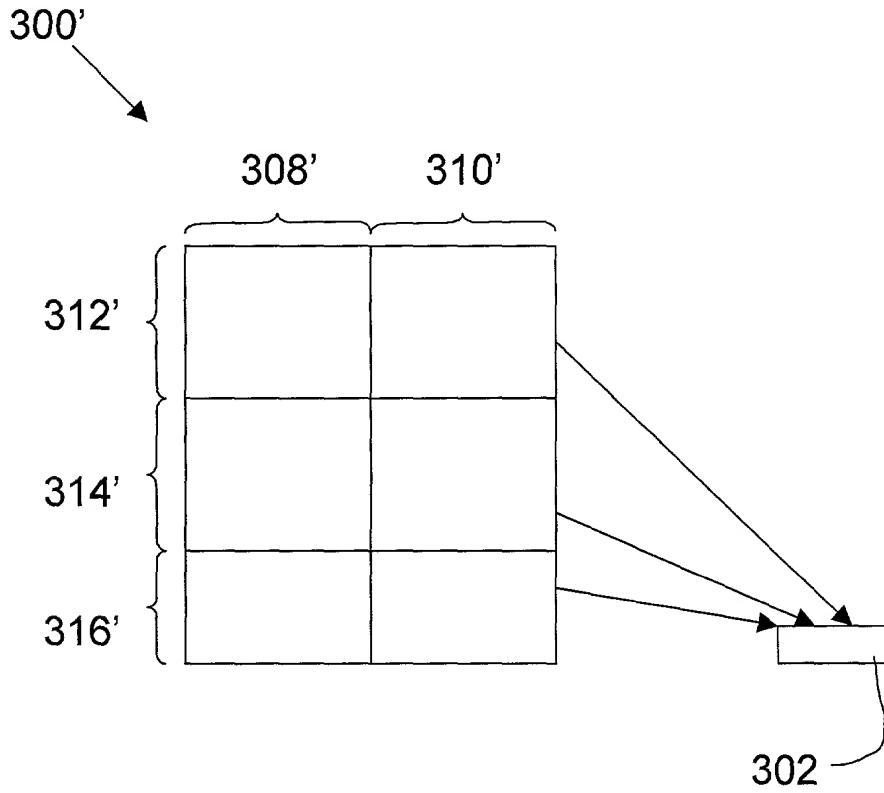


FIG. 14



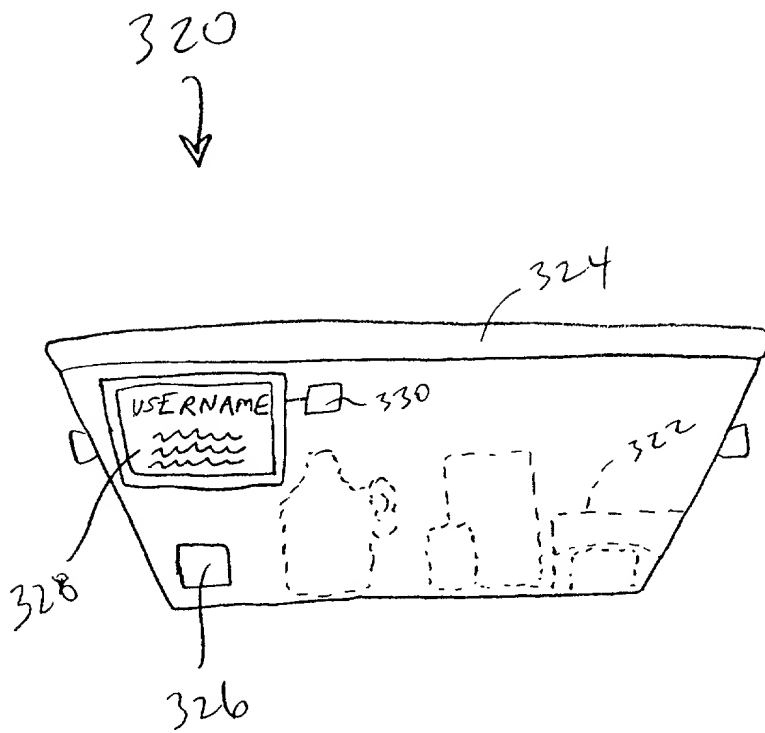
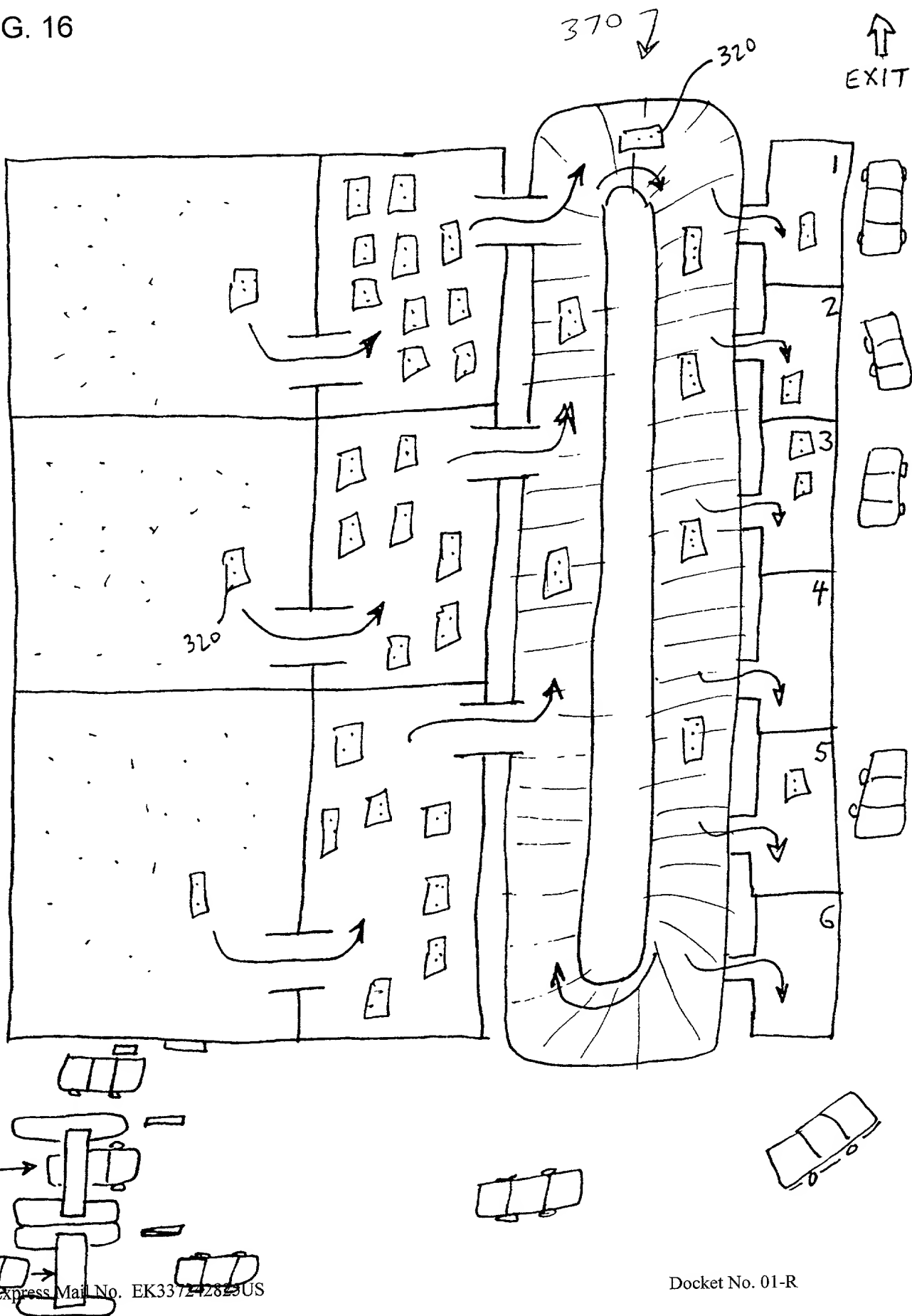


FIG. 15

FIG. 16



007290\*96786560

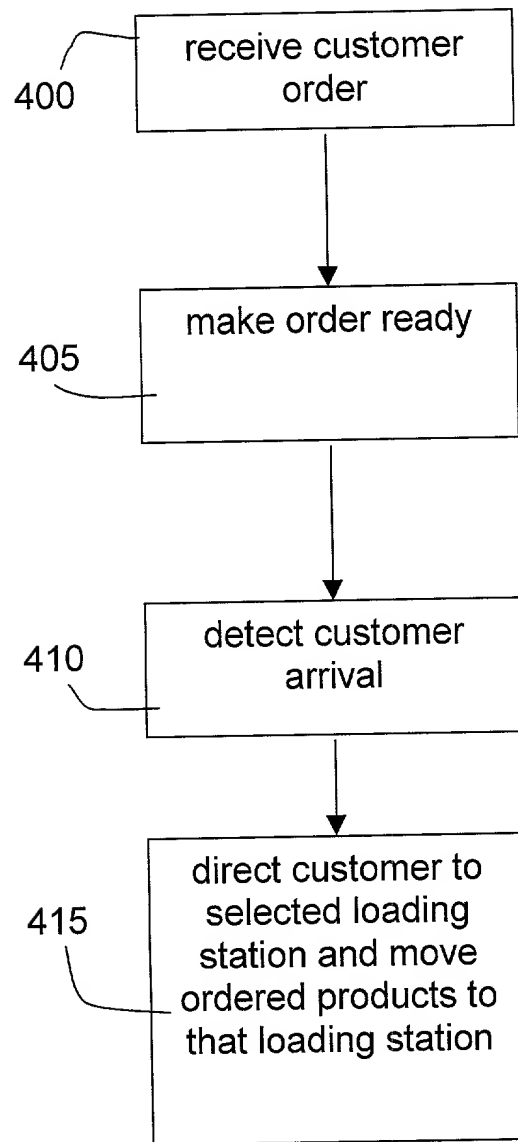


FIG. 17

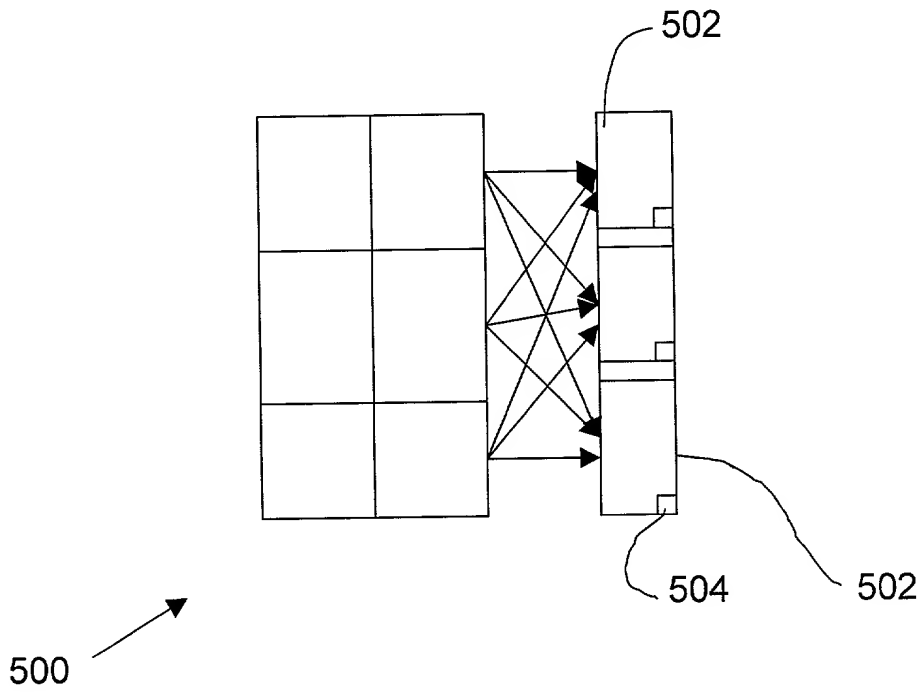



FIG. 18

Please type a plus sign (+) inside this box → 

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**DECLARATION FOR UTILITY OR  
DESIGN  
PATENT APPLICATION  
(37 CFR 1.63)**

☒ Declaration Submitted with Initial Filing **OR** ☐ Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)

Attorney Docket Number

01-R

First Named Inventor

VALLABH

**COMPLETE IF KNOWN**

Application Number

/

Filing Date

HEREWITH

Group Art Unit

Examiner Name

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**AUTOMATED METHOD AND SYSTEM FOR MERCHANDISE  
TRANSACTIONS**

the specification of which

(Title of the Invention)

☒ is attached hereto  
OR

☐ was filed on (MM/DD/YYYY)

as United States Application Number or PCT International

Application Number and was amended on (MM/DD/YYYY) (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:


I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.
60/140,762	06/24/1999	

[Page 1 of 2]

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## DECLARATION — Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

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Name	Registration Number	Name	Registration Number

☐ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto.

Direct all correspondence to: ☐ Customer Number or Bar Code Label

OR ☒ Correspondence address below

Name	RAJESH VALLABH				
Address	50 UNDINE ROAD, UNIT 1				
Address					
City	BRIGHTON	State	MA	ZIP	02135
Country	US	Telephone	617-783-8280	Fax	

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor:		<input type="checkbox"/> A petition has been filed for this unsigned inventor			
Given Name (first and middle [if any])		Family Name or Surname			
RAJESH		VALLABH			
Inventor's Signature	Rajesh Vallabh			Date	6-21-00
Residence: City	BRIGHTON	State	MA	Country	US
Post Office Address	50 UNDINE ROAD, UNIT 1				
Post Office Address					
City	BRIGHTON	State	MA	ZIP	02135
		Country	US		

☐ Additional inventors are being named on the supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto